NOTES ON THE SOUTH AFRICAN SAPOTACEAE

By Rev. J. Gerstner, O.S.B., Ph.D.

The following is a revised classification of the South African Sapotaceae, based on that of Engler.

- Tribe 1. Palaquieae. Petals without appendages, not two or three times as many as the calyx lobes.
  - Sub-Tribe 1. Sideroxylineae. Stamens 5 alternating with 5 staminodes.
    - Genus 1. Sideroxylon L.
      - *S. inerme* L.
  - Sub-Tribe 2. Chrysophyllineae. Stamens 5.
    - Genus 2. Chrysophyllum L.
      - *C. natalense* Sond.
      - *C. viridifolium* Wood & Franks.
      - *C. magalismontanum* Sond.
- Tribe 2. Mimusopeae. Petals with appendages. Segments of corolla tube twice or thrice as many as calyx lobes.
  - Sub-Tribe 3. Multistaminales. Stamens twice or thrice as many as calyx lobes. No staminodes.
    - Genus 3. Labourdonnaisia Boj.
      - *L. discolor* Sond.
  - Sub-Tribe 4. Staminodales. Stamens as many as calyx lobes and alternating with the same number of staminodes.
    - Genus 4. Mimusops L.
      - § Hexalobatae. Six calyx lobes, six stamens and six staminodes.
        - *M. concolor* E. Mey.
        - *M. mochisia* Baker.
      - § Octolobatae
        - *M. caffra* E. Mey.
        - *M. marginata* N. E. Br.
        - *M. obovata* Sond.
        - *M. Zeyheri* Sond.
        - *M. Henriquesiana* Sim.
        - *M. Schinzii* Engl.
        - *M. Kirkii* Bkr. f.

1. *Sideroxylon inerme* L., white milkwood, wit Melkhout: the Standard Zulu Name should be uMakwelefinqane; other more local and ambiguous names are umHlahla, umBobe, and amaSetole. The Xosa name is umQuashu. It flowers in April and has ripe fruits in July. The black berries contain a very viscous juice and are therefore usually not eaten. The pulp of this berry is purplish green. The seeds, usually 1 or 2, are black. It is a frequent evergreen tree of the open bush of the lowveld and yields a good timber. The native doctors use a cupful of the rootbark as an enema to produce a drastic perspiration.

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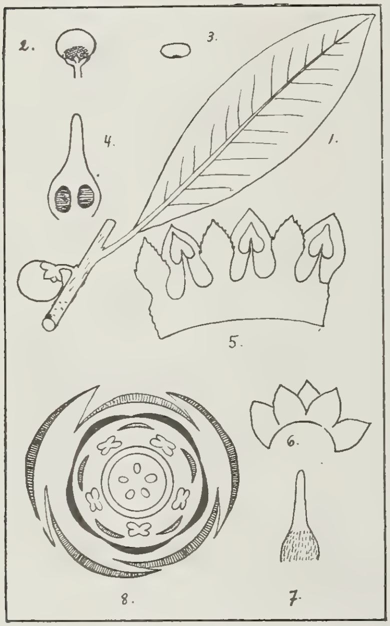
* In the accompanying illustrations the drawings of flowering branches are half natural size (linear).

2. *Chrysophyllum natalense* Sond., the Natal sweet plum, is found as a small tree or as a kind of undershrub in the mistbelt-forests of the East Coast. The red drupes are very delicious. The excellent timber is used for poles. The Zulu name is umTongwane. This name is used also for another tree *Oncoba spinosa* Forsk. of the dry bushveld. The Zulus rightly distinguish, therefore, between umTongwane wehlathi, i.e. of the forest, and umTongwane wehlanze, i.e. of the open bushveld.



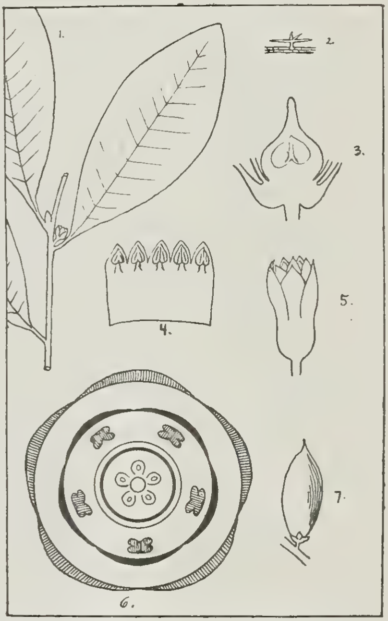


Fig. 1. *Sideroxylon inerme.* 1. Branchlet with leaf and fruit. 2. Berry showing the position of the seed. 3. Seed. 4. Ovary in vertical section. 5. Part of the corolla tube expanded. 6. The calyx expanded. 7. Ovary with style. 8. Flower diagram.

Fig. 2. *Chrysophyllum natalense.* 1. Branchlet with leaves and flower. 2. Hair enlarged. 3. Vertical section through the ovary. 4. Corolla tube expanded. 5. Flower. 6. Flower diagram. 7. Fruit.

3. *Chrysophyllum viridifolium* Wood & Franks.

This is quite frequent in the closed mist belt forests of the first terrace. In the Eshowe forest in particular it is the king of the trees, having usually a straight trunk of 100 ft. or more and the shape of an old *Pinus pinaster*. The berries have the shape of a little apple with a yellow skin (exocarp), a yellowish-whitish pulp (mesocarp) and five brown seeds. The pulp is saturated with a sticky white latex, which makes the fruits not very palatable although they are sweet and edible. They can be found ripe and fallen off from the tree in February and March. This is also the best time to recognize this tree in the forest. The royal timber is very much appreciated. Its Zulu name is umG(w)inya or amaSetole amakulu ehlathi.

4. *Chrysophyllum magalismontanum* Sond. is widely distributed in the Transvaal and is called Stamvrugte. In Natal it occurs only on the Transvaal border along and between the middle Mkuzi and Pongola Rivers. The Zulus call it there amaNumbele, the Shangaan umBovanhlathi, and all Sothos Motlhatswa. It occurs often in shrub form. The fruits are edible. Synonym : *Chrysophyllum Wilmsii* Engl.

5. *Labourdonnaisia discolor* Sond. (= *Mimusops discolor* Hartog). Genus prius restauratum et completum :

Arbor media (diam. circ. 60 cm.), altitudine 10—20 m., cum latice albo et cortice cinereo. In trunco vetere magis in longitudinem quam in latitudinem fissa, in brachiis parvis cortice levi et cicatricoso. Forma eius similis Piri sed amplius ramosa. Folia alterna, obovata, oblonga, petiolo subterete (1—1·2 cm.). Laminarum longitudo circ. 6·5 cm., latitudo circ. 2·5 cm. in loco non nimis sicco. In loco sicco lamina minora. Lamina coriacea, supra viridis, subter tomentosa nitens sicut argentum, basi cuneata, apice recurvato, apiculato noma emarginato, costa subtus prominente tomentosa, nervis lateralibus immersis. Flores infra folia ramulorum, pedicello 5—10 mm., calice duplici trilobato ($\frac{1}{2} \times \frac{1}{2}$ cm.). Lobi externi calicis lati, ovati, apice acuminato, subter rubiginosi et verrucosi, supra lutei, subglabri. Lobi interni calicis angustiores lanceolati, subter et supra flavi et pilosi. Perianthii segmenta in flore perfecto interiora 6 lanceolata-lineata, simplicia, exteriora 6, latiora, bilobata lobis acuminatis. Forma perianthii variat considerabiliter in flore imperfecto et tempore adverso. Itaque flores alii habent tantum 6 lobos simplices noma apiculatos, noma tridentatos, noma trilobatos, faciliter marcescentes et complicantes. Lobi omnes flavi, virescentes et pilosi. Stamina 12, 6 opposita et 6 alternantia lobis interioribus. Antherae caducissimae, luteae, cordatae. Filamenta albida. Stylus virescens ad apicem, paululum exsertus, stigmate sexlobato. Ovarium pilosum, sexloculare. Fructus bacca sphaerica cum pistillo persistente, exocarpo rufo, sarcocarpo succoso, edulis, sapore jucundissimo.

Labourdonnaisia discolor is a medium-sized tree, growing 10—20 m. high and having a diameter of about 60 cm. It has a white latex. The grey bark is longitudinally fissured. On young branches the bark is more smooth and full of leaf-scars. The shape of this tree is that of a Pear tree, but more branched. The leaves are alternate, obovate-oblong. The petiole is subterete and 1—1·2 cm. long. The blade is about 6·3 cm. long and about 2·5 cm. broad, green above, silvery-pubescent below. The midrib is prominent below, the lateral veins immersed, the base is cuneate, the apex recurved and acuminate or emarginate. The little fascicles of flowerlets are in the axils of the leaves. The pedicel is 5—10 mm. long. The double calyx is trilobate. The single lobe is $\frac{1}{2} \times \frac{1}{2}$ cm. in size. The calyx-lobes are fulvo-verrucose below, yellowish and smoother above. In a perfect flower the corolla tube has six lanceolate-lineate inner lobes and six larger deeply bilobate outer lobes. They are all greenish-yellow and hairy and vary considerably in form and size if the flowers are not perfectly developed, some being then simple, some tridentate and some trilobate. They wither and wrinkle very easily. There are 12 stamens, 6 opposite and 6 alternating with the inner corolla-lobes. The cordate-shaped anthers very easily fall off and are of brownish-yellow colour. The filaments are lighter coloured. The style is a little exerted. The stigma is minutely 6-lobed and the ovary is 6-locular. The berry is red and globose with the persistent style at the top. The pulp is juicy and has a good flavour. It would give a very good jam. The timber is excellent and termite-proof.

As this genus has not all the features of the genus Mimusops, differing in the double number of stamens, the lack of staminodes, the bilobate outside lobes of the corolla-tube, the variability of the perianth-lobes generally in imperfect flowers and the fixed and very reduced corolla-tube, the restoration of its first genus-name "Labourdonnaisia" seems to me necessary. It is usually found on the Ecca-series-sandstone in the transition-region of closed to open bush, most frequently in the Hlabisa District, but all through the coastal districts of Natal right north to the Mangusi Forest of the Ingwavuma District. It is called by the Zulus "umNweba," i.e., "the white shining thing," because the bark of the umNweba twigs shows, if peeled off, a kind of white wool, probably

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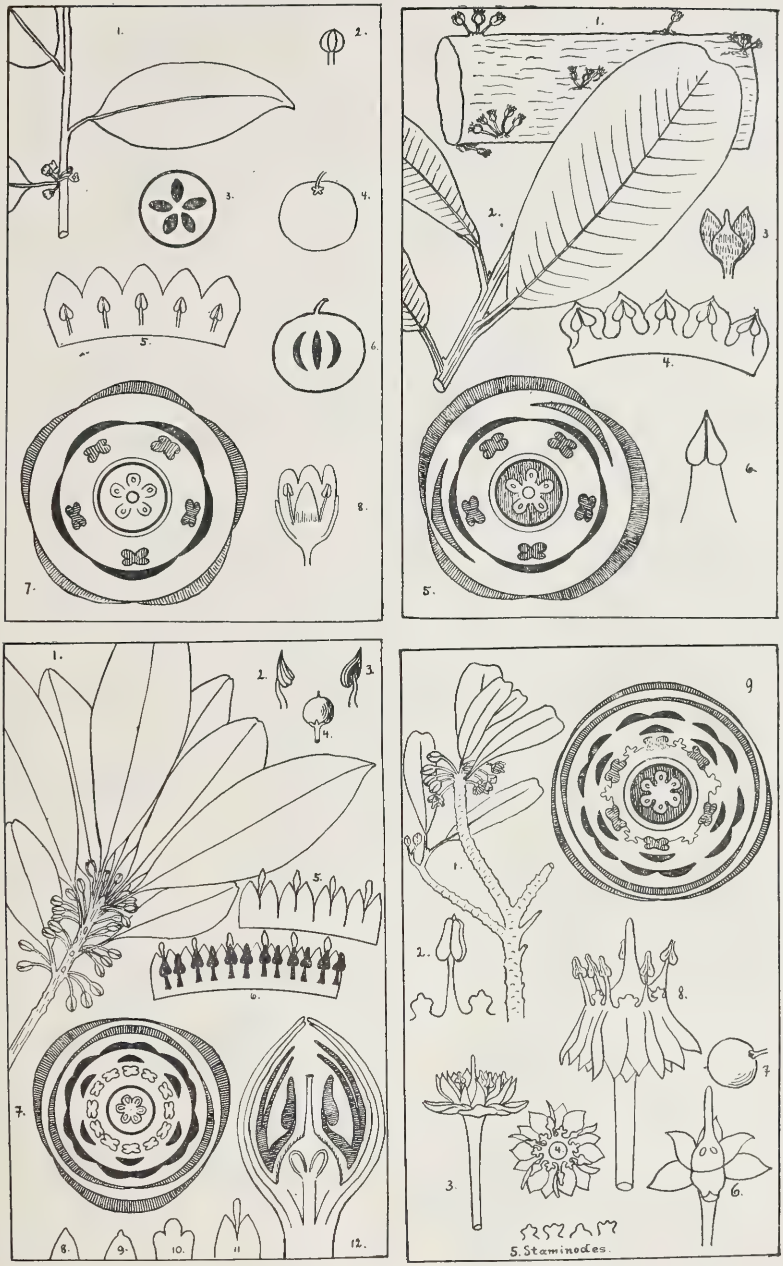
FIG. 3. *Chrysophyllum viridifolium.* 1. Branchlet with flowerlets. 2. Flower bud. 3. Horizontal section through the fruit, diagrammatic. 4. Fruit. 5. Perianth-tube expanded. 6. Vertical section through fruit. 7. Flower-diagram. 8. Vertical section through flower.

FIG. 4. *Chrysophyllum magalismontanum.* 1. Part of an older branch with flowers. 2. Younger branch with leaves. 3. Ovary with part of calyx. 4. Corolla-tube expanded. 5. Flower-diagram. 6. Stamen.

FIG. 5. *Labourdonnaisia discolor.* 1. Flowering branchlet. 2 & 3. Stamens. 4. Fruit. 5. Part of the corolla-tube expanded and seen from outside. 6. Corolla-tube expanded and seen from inside. 7. Flower-diagram. 8—11. Four different variations of the corolla-lobes. 12. Vertical section through a flower-bud, diagrammatic.

FIG. 6. *Mimusops concolor.* 1. Flowering branch. 2. Stamen with two staminodes. 3. Flower enlarged. 4. Corolla tube seen from top. 5. Different varieties of staminodes. 6. Flower without corolla-tube. 7. Fruit. 9. Flower diagram.



Figs. 3—6.

the coagulated guttapercha. In using this native name we must remember that there are three kinds of umNweba: umNweba olwandhle, the umNweba of the sea, *Mimusops caffra*; umNweba wentaba, the umNweba of the hills, *Labourdonnaisia discolor*; and umNweba wehlathi, the umNweba of the Ngome forest, *Gymnosporia acuminata Szysz.*

It flowers usually in September and October. The fruits are ripe in December or later, and are the most delicious wild fruits which I have ever tasted in Africa. In 1938 I found the flowers of this species not fully developed, but in October 1943 I received from the same place perfect flowers, which I have described above.

6. *Mimusops concolor* Harv.; the Zulu Standard name of this tree is " amaSetole amhlope." It is a tree or often a shrub of the dry bushveld preferring Sandstone formations. The Tonga name is umNqambo. This termite-proof tree yields very good poles and excellent timber. The shape is usually that of a Pear tree.

7. *Mimusops mochisia* Baker, a tree of the nothern bushveld, especially round Ndumo and the Nyamini-pan. It grows about 30 ft. high, has a whitish rugose bark and the shape of an apple or even a willow. The Tonga name is also umNqambo. I found in summertime no fruits or flowers on it. Its very crooked branching is typical. The leaves are deciduous and dull like *Mimusops concolor*, but larger. According to Sim the yellow fruit is of the size of a bullace containing four seeds. May be only a tropical form of *Mimusops concolor*.

8. *Mimusops caffra* E. Mey. Its Zulu name is uMakayi, i.e. the duiker's hair brush, on account of the similarity of the opening flower to the tuft of hair on the head of the duiker. It is an excellent timber. Another more general and ambiguous name is the Zulu name " umTunzi," the Shade tree. Chief John Dunn administered justice to the natives under this tree at his residency at the Umlalazi lagoon. Hence the township there is now called emTunzini. The fruit is edible and well-flavoured. The exocarp is orange coloured, the mesocarp contains a starchy sweet pulp. This tree is often dominant in the sand dune bush of the coast, where it is usually the staple food of the monkeys, which spread this tree not digesting the hard black seeds. In the forest at the Inyoni River

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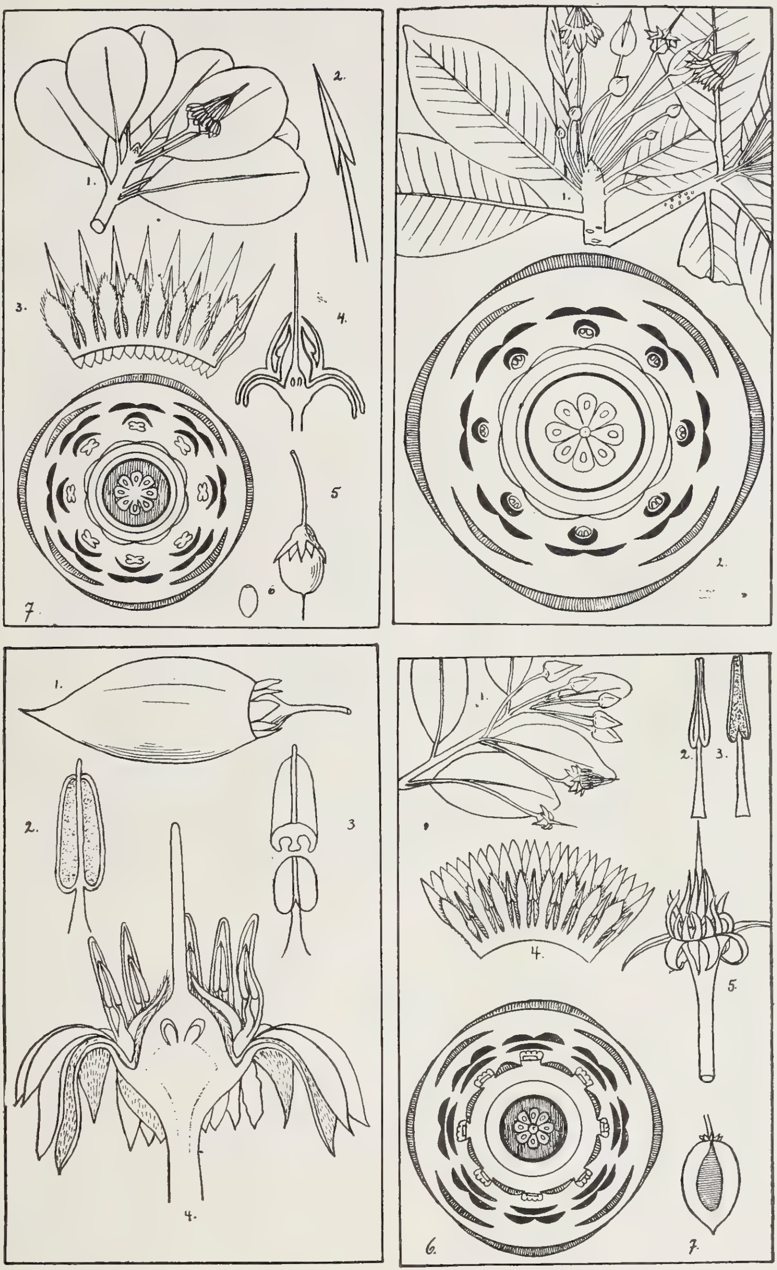
Fig. 7. *Mimusops caffra.* 1. Twig with leaves and flower. 2. Stamen. 3. Corolla-tube expanded. 4. Vertical section through flower. 5. Fruit. 6. Seed. 7. Flower diagram.

Fig. 8. *Mimusops marginata.* 1. Branch top with leaves and flowers collected at 1/9/43 at Nongoma. 2. Flower diagram.

Fig. 9. *Mimusops marginata.* 1. Fruit. 2. Stamen seen from outside. 3. Stamen seen from inside with horizontal section. 4. Whole flower in vertical section.

Fig. 10. *Mimusops obovata.* 1. Twig with flowers and leaves. 2 & 3. Stamens seen from inside and outside. 4. Corolla tube expanded. 5. Flower. 6. Flower diagram. 7. Fruit in vertical section.



FIGS. 7—10.

mouth 75% of the trees are *Mimusops caffra.* At Sordwana Bay it gets even the direct spray of the surf. The afforestation of the many thousands of acres of shifting sands along the Zululand coast seems to me not impossible if the soil is prepared in a wet season by planting first sugar cane and then between the cane rows planting out the trees when about 3 ft. high in cheap containers. A mixed forest of *Mimusops caffra* E. Mey., *Brachylaena discolor* DC., *Olea woodiana* Knobl. and *Casuarina equisetifolia,* would give an evergreen bush and yield excellent timber. Monkeys, bucks and birds would soon create an association of undershrubs as well, if they get a chance.

9. *Mimusops marginata* N.E.Br., a forest tree and royal timber, which grows in mist-belt forests and in closed river bush. Its Zulu name is umPumpulo and the fruits, which are not eaten by man, are called amaPumpulo.

10. *Mimusops obovata* Sond., the red Milkwood, Rooi Melkhout, is a tree of the closed mistbelt forests, but found as well in the bushveld along the more closed bushes especially in kloofs. Its tasty red fruits are edible and very much appreciated if ripe. The royal timber is termite-proof. The Standard Zulu name is " amaSetole ambomvu," the Swazi name is umPushane, another more general Zulu name is umTunzi, Sim gives as Natal name isiPandane. It flowers from August to October and is fertilized by humble bees. I found a half a dozen of these humble bees on one shrub. It is the most frequent Mimusops of the country, growing along the Riverbushes near the sea in all forests and on good soil as well as on pure rocks, and it is not surprising that it varies very much in appearance of leaves and way of flowering. In shady places of the forests we find tender leaves and few flowers, on rocks in sunshine more coriaceous leaves and plenty of flowers. No wonder that there are quite a number of synonyms : *Mimusops Rudatisii* Engl. and Krause ; *Mimusops oleifolia,* a poor bushveld form ; *Mimusops Woodii* Engl., probably a mistbelt form ; probably also *Mimusops blantyreana,* a more tropical form.

11. *Mimusops Zeyheri* Sond., the Moepel, which all Sothos call moPudu and the Vendas Mubululu. It is a royal timber of the western Transvaal and Betchuanaland bushveld. The leaves are on both sides dull greyish-green. It flowers in January. The fruits are edible and very tasty and vary very much in size and shape from sub-globose to egg-shaped. They are ripe in November.

12. *Mimusops Henriquesiana* Sim. I recorded this at False Bay without flowers or fruits. It has more copious Guttapercha-latex than other species.

13. *Mimusops Schinzii* Engl. may occur as well in northern Zululand,

but has not yet been found. Cf. Henkel, woody plants of Natal and Zululand.

14. *Mimusops Kirkii* Bkr. f. was recorded from Magoeba's Kloof, North Transvaal. *Cf.* Gerstner 5881, National Herbarium.

15-18. There are four other species of Mimusops of Southern Rhodesia, which possibly may occur in the Limpopo-valley of Northern Transvaal: *M. decorifolia* S. Moore. *M. Monroi* S. Moore. *M. spiculosa* Hutch. & Corb. *M umbraculigera* Hutch. & Corb.